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SUBJECT: **ARCHITECTURAL TECHNICAL GUIDE 0018 (January 1, 2005)**
Foundation Height Certification: Requirements for Single Family Housing New and Existing Construction

PURPOSE:

Past experience has shown that the improper establishment of the top-of-foundation wall height in new single family housing construction and additions to existing single family housing construction has sometimes caused irreconcilable problems establishing proper site grading around residences. Ultimately this has resulted in instances of undesirable repair costs to borrowers and to the United States government. This Architectural Technical Guide (ATG) is intended to provide specific guidance to: (1) assist in protecting lower building siding, trim, framing, and insulation materials from the effects of surface storm drainage; (2) aid in protecting building foundation systems from similar effects; and (3) discuss a required professional certification procedure for verifying that the installed foundation height closely resembles the requirements contained in the construction contract documents. This ATG is not intended to cover issues concerning overall foundation design and surface/subsurface drainage that are related but are separate design and construction matters discussed in depth in:

ARCHITECTURAL TECHNICAL GUIDE 0002 Professional Foundation and Concrete Slab-on-Grade Design and Certification: Requirements for Single Family Housing New Construction and Additions.

ARCHITECTURAL TECHNICAL GUIDE 0013 Special Site Grading Design Criteria for Surface Storm Water Drainage and to Accommodate Persons with Disabilities: Requirements for Single Family Housing New and Existing Construction.

IMPLEMENTATION RESPONSIBILITIES:

Residential foundation wall heights, affecting new construction and additions to existing construction, should be closely evaluated in accordance with the following procedures, as pertinent for new or existing construction.

Residential foundation wall heights should be established for proposed new construction and additions to existing construction at the design phase in accordance with the special design and certification criteria for foundation systems established in **ARCHITECTURAL TECHNICAL GUIDE 0002 Professional Foundation and Concrete Slab-on-Grade Design and Certification: Requirements for Single Family Housing New Construction and Additions.** Residential lot site

grading should similarly be established in the construction drawings in accordance with the special design criteria for lot grading established in [ARCHITECTURAL TECHNICAL GUIDE 0013 Special Site Grading Design Criteria for Surface Storm Water Drainage and to Accommodate Persons with Disabilities: Requirements for Single Family Housing New and Existing Construction.](#)

Rural Development loan managers should verify that the requirements of ATG 0002 and ATG 0013 are fully incorporated into three identical sets (one for the applicant, contractor, and Rural Development) of construction drawings and specifications for such residences. These documents, in entirety, would form the contractual basis for residential construction and would officially establish a correlation in elevation between the top-of-foundation wall height(s) and adjacent site finish gradients in the foundation wall backfill areas. The establishment of a standard, building industry regulated, minimal vertical separation, between the tops of foundation walls and adjacent finish grades, is a standard model building code requirement and is critical for ensuring the durability of wood building products, gypsum drywall products, and insulation materials to be located in the immediate vicinity of the tops of foundation wall systems.

During the course of construction, Rural Development loan managers should perform reasonable site construction oversight (as time constraints allow) to insure that the foundation construction and site surface grading do not deviate significantly from the intent of the "official" construction drawings and specifications. Reference ATG 0002 and ATG 0013 in this regard. It is imperative that the actually constructed foundation wall heights correspond closely to the original design.

Prior to the commencement of concrete foundation wall pours (or the construction of concrete masonry unit or pressure-treated foundation wall systems, if they would be utilized instead), the contractor should provide Rural Development a certification, prepared by either a Colorado registered land surveyor or engineer, stating that the actual top-of-foundation wall height is similar to that originally designed, within a tolerance of plus or minus 1 inch vertically. The certification language provided in Exhibit A to this ATG is recommended for this purpose. The cost of this certification should be considered an eligible loanmaking purpose and should be itemized in the general contractor's bid.

If the in-place top-of-foundation wall height were verified as conforming substantially with the original design, within a plus or minus 1-inch tolerance, the certification should normally be accepted and the general contractor should promptly be informed to proceed with the foundation construction work, unless other unrelated circumstances were to apply. Otherwise, the general contractor should be requested to correct the noncompliances to meet the criteria of the construction documents and the in-place top-of-foundation wall height were re-verified.

The State Architect may be consulted to assist in the resolution of any technical conflicts, should they arise.

Rural Development loan managers are encouraged to realistically explain all the requirements covered by this ATG to applicants and contractors as early as appropriate since they do imply an added dimension of responsibility and commensurate additional cost.

Communications with Homeowners and Contractors

A brief word about verbal and written communications by Rural Development representatives with prospective homeowners and contractors.

In today's growing litigative environment, Rural Development representatives are cautioned to NOT exceed their administrative authority while discharging their duties and potentially assume the responsibility area of either homeowners or contractors, thereby exposing the agency to potential tort claim litigation. Rural Development's role in the above-discussed matters is inherently advisory with the intent to assist homeowners and contractors, while at the same time helping to insure the long-term security value of mortgaged properties. This sometimes has to be achieved via delicate communications. The agency's design and construction criteria (and their related advantages) should be clearly explained, however, their occasional conflicts with other homeowner desires and contractor construction practices should be weighed with flexibility.

It would, similarly, be inappropriate for a Rural Development representative to insist that the contractor must utilize a particular construction method to install a wheelchair accessible element into the site development design (under the protest of either the homeowner, contractor, or both); however, it would be appropriate to point out the advantages of doing so.

It would be inappropriate for a Rural Development representative to call a contractor's work "substandard", for example, though it would be appropriate to point out that it appeared that a less costly construction method was actually utilized (than was specified in the contract bid specifications) that would accomplish the intended objective but might warrant a monetary credit to the homeowner (via a contractor contract change order request to the homeowner). In this case, the burden of proof would be placed on the contractor to prove otherwise.

Some examples of "exceeding your authority" don'ts would include:

- (1) Direct homeowners concerning which products or materials must be utilized.
- (2) Direct contractors regarding which construction methods must be employed.
- (3) Make representations that could only be backed up by actual field instrument verifications.
- (4) Make building code interpretations that were within the purview of the local building department.
- (5) Direct contractor or subcontractor operations and usurp their authorities.
- (6) Direct design beyond the scope of Rural Development technical guidance documents.
- (7) Deny the homeowner or contractor the right to justify their positions on these matters.

Bottom line, it is appropriate to genuinely question design, practicality, and cost matters and bring them to all parties' attention for resolution, so long as it may not be construed to be harassment or usurping authority. Be careful of making automatic assumptions where the unobvious may also play a role in a given situation.

DAVID W. RIGIROZZI
State Architect
USDA/Rural Development

Exhibit A, "Guide Foundation Wall Height Certification"

Guide Foundation Wall Height Certification

(A statement with basic content similar to the following should be provided to the Rural Development loan manager by the general contractor at the conclusion of final site grading operations. Such language, provided with or on the actual improvement survey or surveyor's certificate, may be considered acceptable for this purpose. The certification should be performed by a State of Colorado registered land surveyor or professional engineer.)

Concerning the proposed residence located at _____
_____, I have personally verified the
actual top-of-foundation wall establishments, performed by _____
_____ and have determined that they:

_____ Conform substantially with the originally proposed engineered foundation wall design,
within a tolerance of plus or minus 1" vertically,

or

_____ Do not conform substantially with the originally proposed engineered foundation wall
design, within a tolerance of plus or minor 1" vertically, due to the following concerns:

or as noted on the attached exhibit, entitled

SIGNED: _____

COLORADO LICENSE NO.: _____

FIRM NAME: _____

FIRM ADDRESS: _____

FIRM TELEPHONE NO.: _____

DATED: _____

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